

(12) UK Patent Application (19) GB (11) 2 196 238 (13) A

(43) Application published 27 Apr 1988

(21) Application No 8724467

(22) Date of filing 19 Oct 1987

(30) Priority data

(31) 8625306

(32) 22 Oct 1986

(33) GB

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(51) INT CL⁴

A47J 44/00 27/00

(52) Domestic classification (Edition J):

A4C 129 A

A4A B1

A4D X

B1C 104 502 611 626 632 AEB

(56) Documents cited

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(58) Field of search

A4C

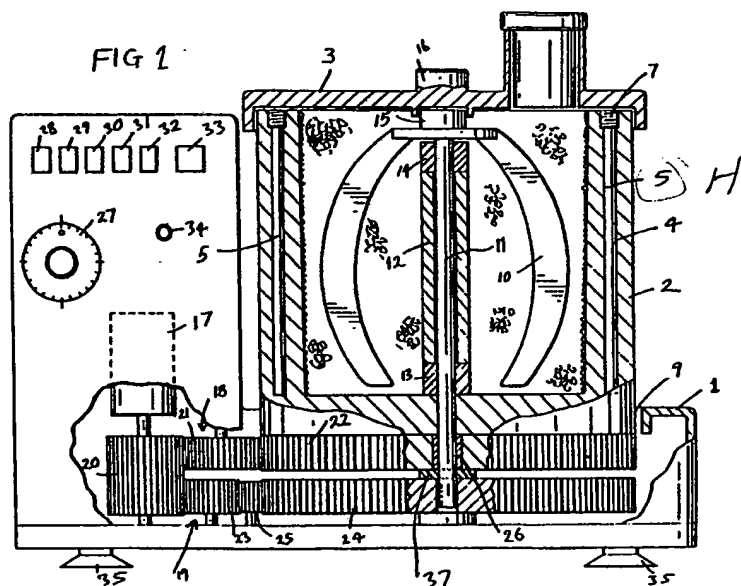
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Selected US specifications from IPC sub-class A47J

(54) Food processor

(57) A food processor has a body (1) that receives a rotary driven bowl (2) in which is arranged a rotary driven mixing blade (10). The blade (10) and bowl (1) are driven by a common motor (17).

The bowl (1) is heated by means of electric rod heaters (5) arranged in the wall of the bowl, the heaters permitting cooking or warming of food in the bowl during mixing.

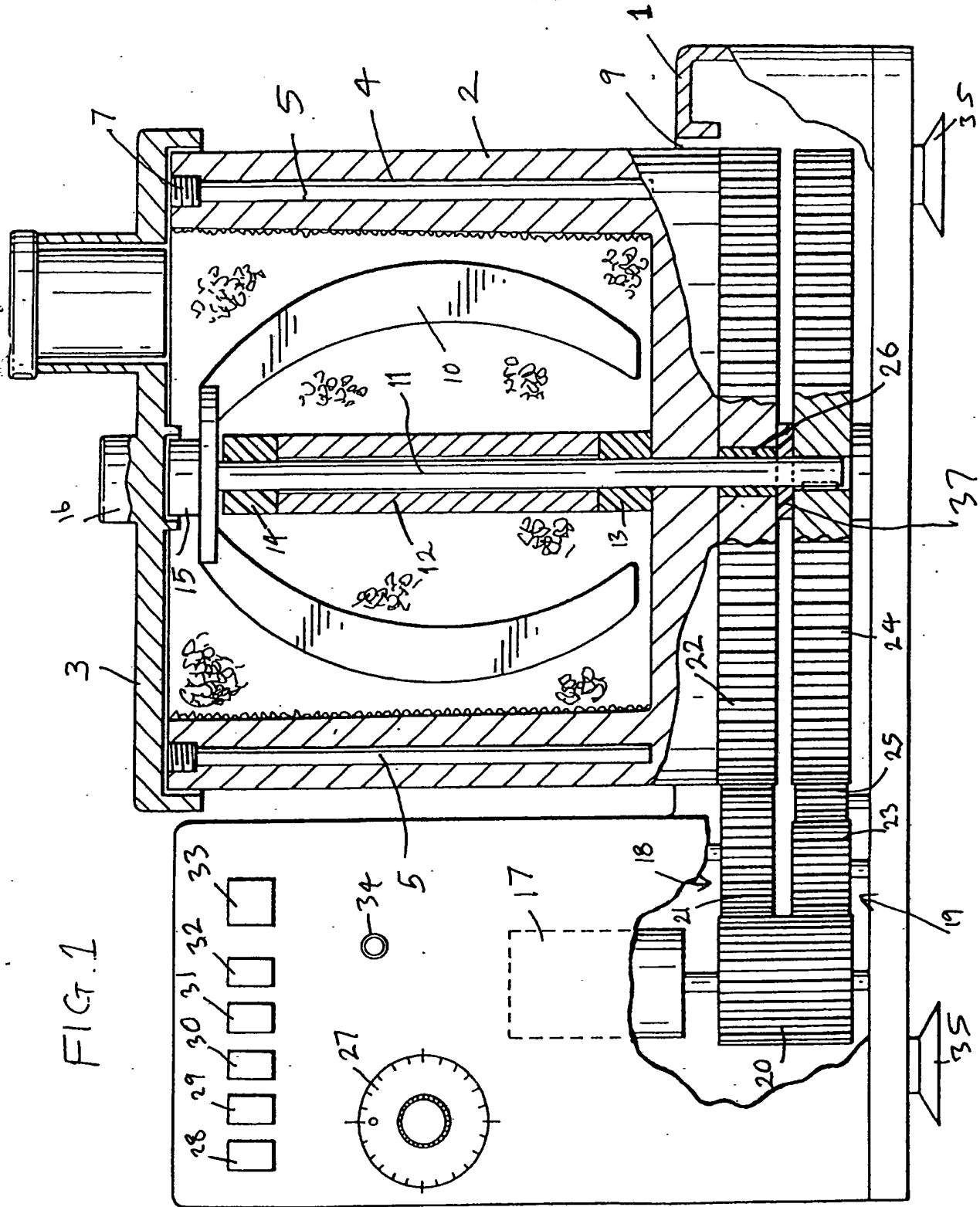


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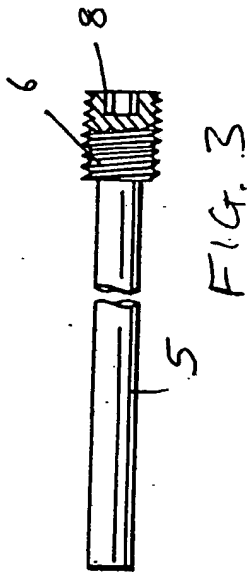
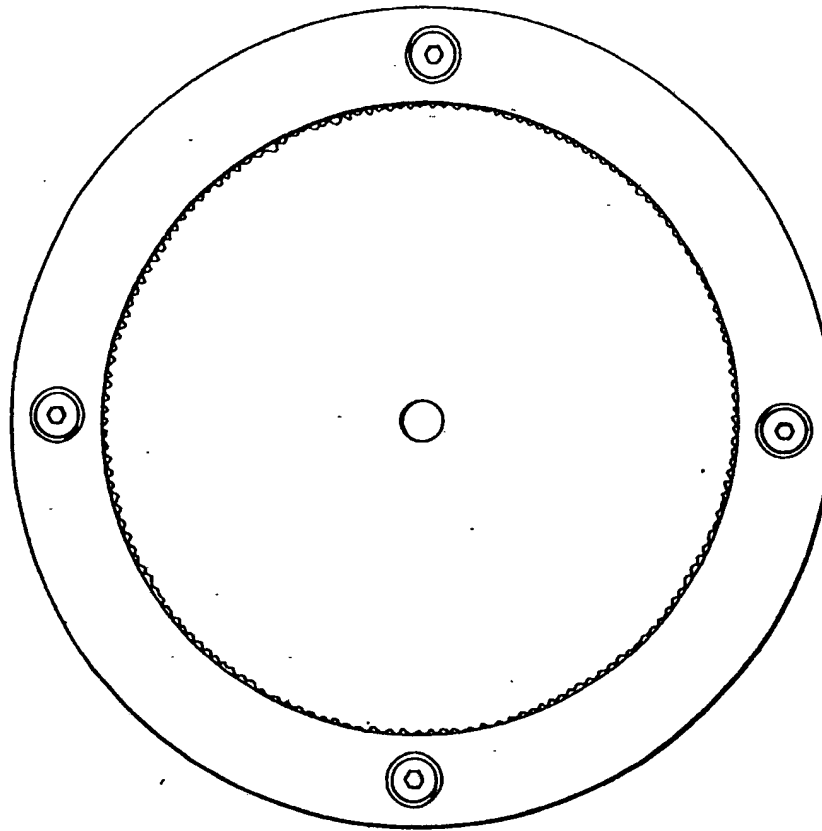
FIG. 1



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FIG. 2



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SPECIFICATION

Food processor

5 DESCRIPTION

This invention relates to a food processor.

Food processors are well known and comprise food processing means for processing food e.g. by mixing in a bowl or like container. Usually, the food processing means is operable at different speeds selected by the user.

The present invention provides a food processor, including a food container, processing means for processing food in the container, and heating means for heating food in the container to permit cooking or warming therein.

Preferably, the food container includes an integral electric heating element.

Preferably, the container comprises a rotatably mounted bowl and motor means are provided to drive the bowl. Conveniently, the processing means comprises mixing means which is contra-rotated relative to the bowl.

The mixing means and the bowl may be driven in opposite directions by a common electric motor or alternatively individual electric motors may be provided for the bowl and mixing means.

Preferably, the heater and/or the drive for the container and/or the drive for the mixing means are operable independently of one another. Also, the drive direction for the mixing means and/or the container may be reversible.

In order that the invention may be more fully understood an example of a food processor according to the invention will now be described in detail with reference to the single Figure of the accompanying drawings in which:

Figure 1 is a side view in partial section of a food processor according to the invention,

Figure 2 is a plan view of the bowl shown in Fig. 1, and

Figure 3 is a schematic illustration of a rod heater element used in the bowl.

The processor comprises a main body 1 on which is mounted a food container in the form of a bowl 2 having a semi-circular base, and a lid 3.

The bowl 2 is made of metal, typically stainless steel, and includes bores 4 that receive rod electric heating elements 5 located by fixing heads 6 that threadingly engage in threaded bore portions 7. The heads 6 are turnable by means of a key that fits into aperture 8. The bowl 2 sits in a circular recess 9 in the housing 1, and is removable for cleaning.

The bowl 2 contains food mixing means in the form of a generally U-shaped fork member 10 attached to a central shaft 11 that is rotatably mounted in a cylindrical support column

12. The column 12 contains bearings 13, 14 typically made of phosphor bronze or nylon which provide a bearing surface for the shaft 11. The upper end of the fork member 10 is provided with a bearing head 15 rotatably received in a bearing recess 16 in the lid 3.

The bowl 2 and the fork member 10 are contra-rotated by means of an electric motor 17 which drives gear trains 18, 19 for the bowl 2 and fork member 10 respectively. For the gear train 18 the motor 17 drives a gear 20 which meshes with gear 21 that in turn meshes with a toothed periphery 22 formed around the bottom of the bowl 2.

For the gear train 19, the gear 20 drives gear 23, which drives a gear 24 through an idler gear 25. The function of the idler gear 25 is to reverse the direction of rotation of gear 24 relative to that of the bowl 2. The shaft 11 is removably keyed into gear 24, the shaft 11 being received in a phosphor bronze bearing 26 mounted centrally of the axis of gear 24. Accordingly, the shaft 11 and fork 10 are contra-rotated relative to the bowl 2.

The food processor has a temperature selection knob 27 to control the temperature of operation of the heater element 4. Knobs 28 to 30 control the speed of operation of the motor 17 and hence the speed of rotation of the bowl 2 and fork 10. Knob 31 operates a control system (not shown) to shift roller gear 21 and disengage drive to the bowl 2. Knob 32 is a pause control and knob 33 is a stop switch. Reference 34 denotes a pilot light that is extinguished when the bowl 2 is heated to the desired temperature, under the control of the thermostat, not shown. The processor has suction feet 35 to mount it on a work surface.

The interior of the bowl may be provided with a rough or contoured surface 36 to aid mixing.

A slip ring 37 provides an electrical supply from the base 1 to the rotary bowl 2, in order to power the heating elements 5.

In use, the processor according to the invention has particular application to preparing foods such as porridge or custard which need to be heated whilst being stirred. It will of course be appreciated that the processor according to the invention can be operated in a more conventional mode by switching off the heater elements 5.

Many modifications and variations of the processor according to the invention will be apparent to those skilled in the art. For example, the bowl 2 and fork 10 could be driven by respective electric drive motors so as to dispense with the gear trains 18, 19. Also, the apparatus may include a reversal control to reverse the direction of rotation of the bowl 2 and/or the fork 10. The reversal could be carried out automatically on a cyclic basis. Additionally, it will be appreciated that the fork 10 can be replaced by different mixing

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implements e.g. dough hooks etc. Further, the bowl and mixing means need not necessarily be contra-rotated.

5 CLAIMS

1. A food processor, including a food container, processing means for processing food in the container, and heating means for heating food in the container to permit cooking or warming therein.
2. A food processor according to claim 1 wherein the food container includes an integral heating element.
3. A food processor according to claim 1 or 2 wherein the container comprises a rotatably mounted bowl and motor means are provided to drive the bowl.
4. A food processor according to claim 3 wherein said processing means comprises food mixing means.
5. A food processor according to claim 4 including means for contra-rotating the mixing means relative to the bowl.
6. A food processor according to claim 4 including means for controlling the direction of rotation of the bowl and/or the mixing means.
7. A food processor according to claim 4 including means for controlling the drive of the bowl and the mixing means independently of one another.
8. A food processor according to claim 4 wherein the drive direction for the mixing means and/or the bowl are reversible.
9. A food processor substantially as herein described with reference to the accompanying drawings.

Published 1988 at The Patent Office, State House, 66/71 High Holborn, London WC1R 4TP. Further copies may be obtained from The Patent Office, Sales Branch, St Mary Cray, Orplington, Kent BR5 3RD. Printed by Burgess & Son (Abingdon) Ltd. Cor. 1/87.

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